

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) An image processing apparatus comprising:
an image obtaining unit that obtains an image captured with an image sensor through an optical system; and
a defect information generating unit that generates defect information indicating a defect within the image having been obtained, based upon a value at a target pixel and an average value of a plurality of pixel values corresponding to pixels present within a predetermined range containing the target pixel, wherein:
the defect information is information on a projected image of a defect within an optical path, which manifests in the image,
the defect information generating unit simultaneously generates information indicating a position of the projected image of the defect within the optical path and information indicating intensity of the projected image of the defect within the optical path and records the position information and the intensity information, and
the defect information generating unit includes a relative ratio calculation unit that calculates a relative ratio of the value at the target pixel and the average value of the plurality of pixel values corresponding to the pixels present within the predetermined range containing the target pixel, and generates the defect information based upon the calculated relative ratio.

2.-4. (Canceled)

5. (Previously Presented) An image processing apparatus comprising:
an image obtaining unit that obtains an image captured with an image sensor;
a defect information generating unit that generates defect information indicating a defect within the image having been obtained, based upon a value at a target pixel and an

average value of a plurality of pixel values corresponding to pixels present within a predetermined range containing the target pixel; and

a correction unit that corrects the defect within the image based upon the defect information, wherein:

the defect information generating unit includes a relative ratio calculation unit that calculates a relative ratio of the value at the target pixel and the average value of the plurality of pixel values corresponding to the pixels present within the predetermined range containing the target pixel, and generates the defect information based upon the calculated relative ratio; and

the correction unit corrects the defect by multiplying a value at a corresponding pixel by a reciprocal of the relative ratio.

6. (Canceled)

7. (Canceled)

8. (Previously Presented) An image processing apparatus comprising:

an image obtaining unit that obtains a reference image photographed through an optical system; and

a defect information generating unit that generates defect information indicating a defect within the reference image having been obtained, based upon a value of a target pixel and an average value of a plurality of pixel values corresponding to pixels present within a predetermined range containing the target pixel in the reference image, wherein:

the defect information is information on a projected image of a defect within an optical path, which manifests in the image,

the defect information generating unit simultaneously generates information indicating a position of the projected image of the defect within the optical path and information

indicating intensity of the projected image of the defect within the optical path and records the position information and the intensity information, and

the defect information generating unit includes a relative ratio calculation unit that calculates a relative ratio of the value at the target pixel and the average value of the plurality of pixel values corresponding to the pixels present within the predetermined range containing the target pixel, and generates the defect information based upon the calculated relative ratio.

9. (Previously Presented) An image processing apparatus comprising:

an image obtaining unit that obtains a reference image photographed through an optical system; and

a defect information generating unit that generates defect information indicating a defect within the reference image having been obtained, based upon a value of a target pixel and an average value of a plurality of pixel values corresponding to pixels present within a predetermined range containing the target pixel in the reference image, wherein:

the defect information generating unit includes a relative ratio calculation unit that calculates a relative ratio of the value at the target pixel and the average value of the plurality of pixel values corresponding to the pixels present within the predetermined range containing the target pixel, and generates the defect information based upon the calculated relative ratio;

the image obtaining unit obtains a correction target image photographed through the optical system;

there is further provided a correction unit that corrects a defect within the correction target image based upon the defect information within the reference image; and

the correction unit corrects a value of a corresponding pixel in the correction target image by multiplying the value of the corresponding pixel with a reciprocal of the relative ratio calculated for the reference image.

10. (Previously Presented) An image processing apparatus according to claim 9, wherein: the correction unit determines the correction value by using an initial signal value indicated at a specific correction target pixel position.

11. (Previously Presented) An image processing apparatus according to claim 9, wherein:

if the reference image and the correction target image have been photographed through an optical system in substantially identical optical conditions with regard to an aperture value and a pupil position, the correction unit corrects a value at a pixel constituting the correction target image by directly using the defect information having been generated.

12. (Previously Presented) An image processing apparatus according to claim 9, further comprising:

a defect information conversion unit that converts the defect information in correspondence to at least either of an aperture value and a pupil position constituting optical conditions of the optical system, wherein:

if the reference image and the correction target image have been photographed through the optical system under different optical conditions with regard to at least either the aperture value or the pupil position, the correction unit corrects a value at a pixel constituting the correction target image by using the converted defect information.

13.-79. (Canceled)

80. (Currently Amended) A non-transitory computer-readable ~~computer program product having~~ storage medium storing an image processing program enabling a computer to execute functions of ~~an~~ the image processing apparatus according to claim 1.

81. (Canceled)

82. (Canceled)

83. (Previously Presented) An image processing apparatus according to claim 1, wherein:

the defect information generating unit generates defect information for an area within the image, which satisfies a predetermined condition.

84. (Canceled)

85. (Previously Presented) An image processing apparatus according to claim 8, wherein:

the relative ratio calculation unit sets the calculated relative ratio to 1 if the calculated relative ratio falls within a predetermined range containing 1.

86. (Previously Presented) An image processing apparatus according to claim 85, wherein:

the relative ratio calculation unit correlates the predetermined range over which the calculated relative ratio is set to 1 with a standard deviation value of the calculated relative ratio.

87. (Previously Presented) An image processing apparatus according to claim 86, wherein:

the relative ratio calculation unit sets the predetermined range over which the calculated relative ratio is set to 1 to a $\pm (3 \times \text{standard deviation value})$ range.

88.-89. (Canceled)